

## Summary

It is so made that a fluid passage can be abruptly opened with a very simple device and operations and also in a short period of time without causing water hammer.

The water hammerless opening device comprises an actuator operating type valve installed on the fluid passage, an electro-pneumatic conversion device to supply the 2-step actuator operating pressure  $P_a$  to the afore-mentioned actuator operating type valve, a vibration sensor removably fixed to the pipe passage on the upstream side of the actuator operating type valve, and a tuning box to which the vibration detecting signal  $P_r$  detected by the vibration sensor is inputted, through which the control signal  $S_c$  to control the step operating pressure  $P_s'$  of the afore-mentioned 2-step actuator operating pressure  $P_a$  is outputted to the electro-pneumatic conversion device, and with which the 2-step actuator operating pressure  $P_a$  of the step operating pressure  $P_s'$  which makes the vibration detecting signal  $P_r$  nearly zero is outputted from the electro-pneumatic conversion by adjusting said control signal  $S_c$ .